

WHAT IS CLAIMED IS:

1. A heater drive circuit comprising:
  - current detecting means for detecting a value of a current across an AC power supply line that is supplied from an AC power supply;
  - full-wave rectifying means for full-wave-rectifying an AC voltage on the AC power supply line;
  - switching means for switching the full-wave-rectified voltage from said full-wave-rectifying means at a high frequency;
  - voltage detecting means for detecting a voltage applied to a heating heater that should be driven; and
  - heater control means for ON/OFF-controlling said switching means on the basis of the current value detected by said current detecting means and the voltage value detected by said voltage detecting means.
2. A heater drive circuit according to claim 1, further comprising filter means for removing a high frequency component contained in a switching output by said switching means,
  - wherein the full-wave-rectified voltage subjected to switching at the high frequency is applied to said heating heater through said filter means.

3. A heater drive circuit according to claim 1, wherein said voltage detecting means detects an average value or a peak value of the voltage applied to said heating heater.

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4. A heater drive circuit according to claim 3, wherein said current detecting means is constructed of a current transformer interposed in series in the AC power supply line and a rectification circuit  
10 connected to an output winding of said current transformer.

5. A heater drive circuit according to claim 3, wherein said switching means includes a switching  
15 transistor and a current retaining diode connected to said switching transistor, and changes an ON/OFF duty of said switching transistor.

6. A heater drive circuit according to claim 5,  
20 wherein said heater control means gradually increases the ON/OFF duty when starting the drive of said heater as set ON from OFF, and controls the ON/OFF duty so that the current value detected by said  
current detecting means is held to a predetermined  
25 value at a point of time when predetermined or longer time elapses since the start of the operation.

7. A heater drive circuit according to claim 5,  
further comprising storage means for storing the  
voltage value detected by said voltage detecting  
means when controlling the ON/OFF duty of said  
5 switching means so that the current value detected by  
said current detecting means comes to a predetermined  
value in a state where the voltage value on the AC  
power supply line is fixed to a predetermined value,  
wherein said switching means, when a  
10 predetermined condition is met, controls the ON/OFF  
duty so that the voltage value detected by said  
voltage detecting means is equalized to the voltage  
value stored on said storage means or to a value  
corresponding to the voltage value.

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8. A heater drive circuit according to claim 7,  
wherein the predetermined condition is a condition  
that said heater drive circuit be utilized by a user.

20 9. A heater drive circuit according to claim 1,  
wherein an image formed on an image bearing body is  
thermally fixed by said heating heater driven by said  
heater drive circuit.

25 10. An image forming apparatus including a  
fixing device according to claim 9.

11. A heater drive circuit comprising:

a current detector for detecting a value of a current across an AC power supply line that is supplied from an AC power supply;

5 a full-wave rectifier for full-wave-rectifying an AC voltage on the AC power supply line;

a switching device for switching the full-wave-rectified voltage from said full-wave-rectifying means at a high frequency;

10 a voltage detector for detecting a voltage applied to a heating heater that should be driven; and

a heater control unit for ON/OFF-controlling said switching device on the basis of the current value detected by said current detector and the voltage value detected by said voltage detector.

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12. A heater drive circuit according to claim 11, further comprising a filter circuit for removing a high frequency component contained in a switching output by said switching device,

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wherein the full-wave-rectified voltage subjected to switching at the high frequency is applied to said heating heater through said filter circuit.

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13. A heater drive circuit according to claim

11, wherein said voltage detector detects any one of an average value and a peak value of the voltage applied to said heating heater.

5           14. A heater drive circuit according to claim 13, wherein said current detector is constructed of a current transformer interposed in series in the AC power supply line and a rectification circuit connected to an output winding of said current  
10 transformer.

          15. A heater drive circuit according to claim 13, wherein said switching device includes a switching transistor and a current retaining diode  
15 connected to said switching transistor, and changes an ON/OFF duty of said switching transistor.

          16. A heater drive circuit according to claim 15, wherein said heater control unit gradually  
20 increases the ON/OFF duty when starting the drive of said heater as set ON from OFF, and controls the ON/OFF duty so that the current value detected by said current detector is held to a predetermined value at a point of time when predetermined or longer  
25 time elapses since the start of the operation.

          17. A heater drive circuit according to claim

15, further comprising a storage device for storing  
the voltage value detected by said voltage detector  
when controlling the ON/OFF duty of said switching  
control means so that the current value detected by  
5 said current detector comes to a predetermined value  
in a state where the voltage value on the AC power  
supply line is fixed to a predetermined value,

wherein said switching device, when a  
predetermined condition is met, controls the ON/OFF  
10 duty so that the voltage value detected by said  
voltage detector is equalized to the voltage value  
stored on said storage device or to a value  
corresponding to the voltage value.

15 18. A heater drive circuit according to claim  
17, wherein the predetermined condition is a  
condition that said heater drive circuit be utilized  
by a user.

20 19. A fixing device comprising:  
a heater drive circuit according to claim 11;  
and

a heating heater driven by said heater drive  
circuit,

25 wherein an image formed on an image bearing  
body is thermally fixed by said heater drive circuit  
and said heating heater.

20. An image forming apparatus including a fixing device according to claim 19,  
wherein an image formed on an image bearing body is thermally fixed by said fixing device.